CHAPTER 5

FLOORS

SECTION R501 GENERAL

R501.1 Application. The provisions of this chapter shall control the design and construction of the floors for all buildings including the floors of *attic* spaces used to house mechanical or plumbing fixtures and *equipment*.

R501.2 Requirements. Floor construction shall be capable of accommodating all loads according to Section R301 and of transmitting the resulting loads to the supporting structural elements.

R501.3 Fire protection of floors. Floor assemblies, not required elsewhere in this code to be fire-resistance rated, shall be provided with a $^{1}/_{2}$ -inch (12.7 mm) gypsum wallboard membrane, $^{5}/_{8}$ -inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member.

Exceptions:

- Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA13D, or other approved equivalent sprinkler system.
- 2. Floor assemblies located directly over a crawl space not intended for storage for fuel-fired appliances. >
- 3. Portions of floor assemblies can be unprotected when complying with the following:
 - 3.1. The aggregate area of the unprotected portions shall not exceed 80 square feet per story
 - 3.2. Fire blocking in accordance with Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
- 4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

SECTION R502 WOOD FLOOR FRAMING

R502.1 Identification. Load-bearing dimension lumber for joists, beams and girders shall be identified by a grade *mark* of a lumber grading or inspection agency that has been *approved* by an accreditation body that complies with DOC PS 20. In lieu of a grade *mark*, a certificate of inspection issued by a lumber grading or inspection agency meeting the requirements of this section shall be accepted.

R502.1.1 Preservative-treated lumber. Preservative treated dimension lumber shall also be identified as required by Section R317.2.

R502.1.2 Blocking and subflooring. Blocking shall be a minimum of utility grade lumber. Subflooring may be a minimum of utility grade lumber or No. 4 common grade boards.

R502.1.3 End-jointed lumber. Approved end-jointed lumber identified by a grade mark conforming to Section R502.1 may be used interchangeably with solid-sawn members of the same species and grade. End-jointed lumber used in an assembly required elsewhere in this code to have a fire-resistance rating shall have the designation "Heat Resistant Adhesive" or "HRA" included in its grade mark.

R502.1.4 Prefabricated wood I-joists. Structural capacities and design provisions for prefabricated wood I-joists shall be established and monitored in accordance with ASTM D 5055.

R502.1.5 Structural glued laminated timbers. Glued laminated timbers shall be manufactured and identified as required in ANSI/AITC A190.1 and ASTM D 3737.

R502.1.6 Structural log members. Stress grading of structural log members of nonrectangular shape, as typically used in log buildings, shall be in accordance with ASTM D 3957. Such structural log members shall be identified by the grade *mark* of an *approved* lumber grading or inspection agency. In lieu of a grade *mark* on the material, a certificate of inspection as to species and grade issued by a lumber-grading or inspection agency meeting the requirements of this section shall be permitted to be accepted.

R502.1.7 Structural composite lumber. Structural capacities for structural composite lumber shall be established and monitored in accordance with ASTM D 5456.

R502.2 Design and construction. Floors shall be designed and constructed in accordance with the provisions of this chapter, Figure R502.2 and Sections R317 and R318 or in accordance with AF&PA/NDS.

R502.2.1 Framing at braced wall lines. A load path for lateral forces shall be provided between floor framing and *braced wall panels* located above or below a floor, as specified in Section R602.10.8.

R502.3 Allowable joist spans. Spans for floor joists shall be in accordance with Tables R502.3.1(1) and R502.3.1(2). For other grades and species and for other loading conditions, refer to the AF&PA Span Tables for Joists and Rafters.

R502.3.1 Sleeping areas and attic joists. Table R502.3.1(1) shall be used to determine the maximum allowable span of floor joists that support sleeping areas and *attics* that are accessed by means of a fixed stairway in accordance with Section R311.7 provided that the design live load does not exceed 30 pounds per square foot (1.44 kPa) and the design dead load does not exceed 20 pounds



State of Tennessee

PUBLIC CHAPTER NO. 679

HOUSE BILL NO. 2163

By Representative Powell

Substituted for: Senate Bill No. 2282

By Senator Dickerson

AN ACT to amend Tennessee Code Annotated, Section 68-120-101, relative to section 501.3 of the 2012 International Residential Code.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Section 68-120-101, is amended by adding the following new subsection:

(h) The words "or fuel-fired appliances" in exception 2 of R501.3 of the 2012 International Residential Code, published by the International Code Council, Inc., shall be disregarded by any state or local government official in determining the applicability of R501.3 to any residential construction prior to January 1, 2016.

SECTION 2. This act shall take effect upon becoming law, the public welfare requiring it.

HOUSE BILL NO. 2163

PASSED: March 31, 2014

BETH HARWELL, SPEAKER HOUSE OF REPRESENTATIVES

> RON HAMSEY SPEAKER OF THE SENATE

APPROVED this 4 day of 201

BILL HASLAM, GOVERNOR